

# Grand Gulf 1

## 3Q/2013 Plant Inspection Findings

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### Initiating Events

**Significance:**  Mar 31, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Reactor Scram Due to Ground Fault**

Green. The inspectors reviewed a self-revealing finding for the failure to ensure the current transformer structure, the neutral bus housing, and the associated mounting hardware were installed with adequate clearance to accommodate thermal expansion. This failure resulted in an automatic reactor scram on December 29, 2012, and a subsequent scram on January 4, 2013. Following the second scram on January 4, 2012, the licensee determined the cause of the scram was a trip of the phase A unit differential relay because of a ground fault on the A phase of the generator neutral current transformer, due to inadequate clearances. Immediate corrective actions included removing the damaged current transformer and modifying the neutral bus housing. The plant scrams were entered into the corrective action program as Condition Reports CR-GGN-2012-13290 and CR-GGN-2013-00083.

The failure to install micarta plate bolts in accordance with manufacturer specifications and ensure that the current transformer structure, the neutral bus housing, and the associated mounting hardware had adequate clearance is a performance deficiency. This finding is more than minor because it is associated with the Initiating Events Cornerstone attribute of human performance and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown and power operations. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Initiating Events Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that the issue has very low safety significance (Green) because it caused only a reactor trip and did not cause a loss of mitigating equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The finding has a cross-cutting aspect in the human performance area associated with the resources component because the licensee failed to provide adequate work instructions [H.2(c)] (Section 40A3).

Inspection Report# : [2013002](#) (*pdf*)

**Significance:**  Mar 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Inadequate Procedure for Removal of a Foreign Material Exclusion Plug**

Green. The inspectors reviewed a self-revealing non-cited violation of 10 CFR 50 Appendix B Criterion V, for the failure to provide adequate instructions to remove foreign material from the exhaust port of relief valve 1B21F047A. As a result, the valve failed to close at its reset setpoint following a reactor scram on December 29, 2012. The valve failed to close at its reset setpoint of 1013 psig and remained open until pressure fell to approximately 675 psig. The immediate corrective actions were to remove the foreign material exclusion plug from the exhaust port of valve 1B21-F047A and to ensure no plug was installed in any other safety relief valve. The licensee entered this issue into the corrective action program as Condition Report CR-GGN-2013-00100.

The failure to provide adequate instructions to remove foreign material from the exhaust port of relief valve 1B21F047A is a performance deficiency. This finding is more than minor because it is associated with the Initiating

Events Cornerstone attribute of human performance and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Initiating Events Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that the issue has very low safety significance (Green) because after a reasonable assessment of the degradation, the finding could not result in exceeding the reactor coolant leak rate for a small loss of coolant accident because the configuration of the safety relief valve was such that it would close at approximately 675 psig. Also the finding did not affect other systems used to mitigate a loss of coolant accident resulting in a total loss of their function. The finding has a cross-cutting aspect in the area of human performance associated with the decision-making component because the licensee did not use a systematic process to make a safety-significant decision. [H.1 (a)] (Section 40A3).

Inspection Report# : [2013002](#) (pdf)

**Significance:**  Mar 31, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

#### **Reactor Scram Due to Moisture in Isophase Bus Duct**

Green. The inspectors reviewed a self-revealing finding for the failure to identify a degraded isophase bus duct view port window, which allowed water to intrude into the duct and caused an automatic reactor scram on January 14, 2013. The licensee took corrective action to stop the water intrusion into the isophase bus duct and to electrically isolate the spare transformer from the energized transformers. The licensee entered this issue into the corrective action program as Condition Report CR-GGN-2013-00319.

The failure to identify a degraded isophase bus duct view port window is a performance deficiency. The finding is more than minor because it is associated with the Initiating Events Cornerstone attribute of human performance and adversely affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and that challenge critical safety functions during power operations. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Initiating Events Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that the issue has a very low safety significance (Green) because it caused only a reactor trip and did not cause a loss of mitigating equipment relied on to transition the plant from the onset of a trip to a stable shutdown condition. The finding has a cross-cutting aspect in the area of human performance associated with the decision-making component because the licensee did not use conservative assumptions in decision-making [H.1(b)] (Section 40A3).

Inspection Report# : [2013002](#) (pdf)

**Significance:**  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Revise the Scram Procedure After Temporary Modification**

Green. The inspectors identified a non-cited violation of Technical Specification 5.4.1.a, for the failure to revise the scram procedure after temporarily modifying the division-2 circuits that sense first-stage turbine pressure. Specifically, after a steam sensing line failed, the licensee had introduced a dummy signal into the subject circuits to comply with technical specifications; however, they failed to revise Procedure 05-1-02-I-1, "Reactor Scram," Revision 117, to reflect this temporary modification. This resulted in additional scrams during scram recovery for the scrams on December 29, 2012, and January 4, 2013. Immediate corrective actions included modifying the scram procedure to require the operators to turn off the units that provide the dummy signal to the division-2 circuits that

sense first-stage turbine pressure following a reactor scram, allowing the operators to reset the full scram promptly. The licensee entered this issue into the corrective action program as Condition Report CR GGN-2013-001259.

The failure to revise Procedure 05-1-02-I-1 following a temporary modification to the division-2 circuits that sense first-stage turbine pressure is a performance deficiency. The finding is more than minor because it is associated with the Initiating Events Cornerstone attribute of human performance and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Initiating Events Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that the issue has very low safety significance (Green) because it only caused a reactor trip and did not cause the loss of mitigating equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The finding has a cross-cutting aspect in the area of human performance associated with the work practices component because licensee personnel failed to ensure that procedures impacted by a temporary modification were properly revised to compensate for the installed modification [H.4(b)] (Section 40A3).

Inspection Report# : [2013002](#) (pdf)

**Significance:**  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Evaluate the Risk Significances and Develop Action Plans to Address Equipment Identified During Extent of Condition Review for a Post Scram Root Cause Analysis**

Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," involving the licensee's failure to follow procedure EN-LI-118, "Root Cause Evaluation Process," Revision 18, in that they failed to evaluate the risk significances and develop action plans to address equipment identified during their extent-of-condition review for a post-scram root cause analysis. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2012-11950. The immediate corrective actions included assigning corrective actions for operations personnel to properly evaluate the risk significance of the identified components and perform appropriate corrective actions to correct the degraded conditions.

The licensee's failure to properly determine risk significance and associated action plans to correct degraded equipment that could challenge safe plant operation is a performance deficiency. The performance deficiency is more than minor and is therefore a finding because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the failure to take corrective actions to correct degraded equipment has the potential to lead to initiating events resulting in plant transients. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Initiating Events Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that the issue has very low safety significance (Green) because the finding did not cause a reactor trip or the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition.

The inspectors determined that the apparent cause of this finding was that when operations management directed operators to identify the degraded equipment, they did not encourage those operators to comply with Procedure EN-LI-118. Therefore, the finding has a cross-cutting aspect in the human performance area, work practices component because the licensee did not define and effectively communicate expectations regarding procedural compliance. [H.4(b)] (Section 40A3).

Inspection Report# : [2012005](#) (pdf)

## Mitigating Systems

**Significance:** G Jun 28, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Properly Implement a Compensatory Fire Watch per Station Fire Protection Procedures**

Green. The inspectors identified a non-cited violation of Facility Operating License Condition 2.C(41) for the failure to properly implement a compensatory fire watch per the station fire protection program. Following an inadvertent release of carbon dioxide from the Cardox automatic fire suppression system into a division 2 safety related switchgear room located in the auxiliary building, the operators isolated the auxiliary building from the Cardox system to prevent any future inadvertent releases. The inspectors accompanied the fire watch patrol, which was required due to the isolation of the Cardox system to the auxiliary building, and they noted that during the patrol, none of the 10 rooms requiring a fire watch were checked. The inspectors brought this concern to the shift manager who confirmed that each room was required to be checked per the established fire watch criteria and that the fire watch patrol misunderstood the requirement. The licensee took immediate corrective action to direct the fire watch to check all the rooms to restore compliance with the fire watch requirements. The licensee entered this issue into the corrective action program as Condition Report CR-GGN-2013-04058.

The failure to perform a fire watch in accordance with the fire protection program is a performance deficiency. The performance deficiency is more than minor and therefore a finding because it is associated with the protection against the external factors attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, failing to perform the fire watch correctly adversely impacted the plant's capability to detect and suppress a fire in a timely manner.

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Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Mitigating Systems Cornerstone. Using NRC Inspection Manual Chapter 0609, Attachment 4, Table 3, the inspectors were directed to NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." The inspectors determined that the finding had an adverse affect on the fixed fire protection systems element of fire watches posted as a compensatory measure for outages or degradations. The inspectors assigned a high degradation rating due to the automatic fire suppression system being tagged out of service. Because the system was degraded without compensatory actions for less than three days, the inspectors used a duration factor of 0.01. The inspectors used 2E-2 for a generic fire frequency area for a switchgear room. The resulting change in core damage frequency was 2E-4, which was greater than the high degradation Phase 1 Quantitative Screening Criteria of 1E-6. Therefore, a senior reactor analyst performed a detailed risk evaluation. The analyst performed a bounding analysis of the performance deficiency (See Table 1R05-1). For each of the 10 affected fire areas, the analyst determined the probability of a fire occurring by multiplying the fire ignition frequency from the licensee's fire hazards analysis by the 9.2 hours that the performance deficiency impacted the plant. Because each fire area had a functional fire detection system throughout the exposure period, the analyst determined the non-detection probability by multiplying the fire probability by the generic failure probability for a detection system. The analyst made the bounding assumption that all fires postulated to initiate that were not detected would proceed to core damage. The sum of all the non-detection probabilities was  $9.1 \times 10^{-7}$  (See Table 1R05-1). Therefore, the bounding analysis indicates that this finding is of very low safety significance (Green).

The inspectors determined the apparent cause of this finding was that the security officers performing the fire watch patrols did not understand the requirement to visually check the affected rooms. Therefore, the finding has a cross-cutting aspect in the human performance area associated with the work practices component because the licensee did not communicate human error prevention techniques such as pre-job briefings and proper documentation of activities commensurate with the risk of the assigned task [H.4(a)] (Section 1R05.1.b).

Inspection Report# : [2013003](#) (*pdf*)

**Significance:** G Jun 28, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Correct a Nonconforming Condition with the Standby Diesel Generator Inlet Plenum Turning Vanes**

Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," which states, in part, that "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances, are promptly identified and corrected." Specifically, from November 3, 1988, until March 6, 2010, actions to correct known design deficiencies on the left and right bank's intercooler inlet plenums of both the division 1 and 2 standby diesel generators were not fully implemented. The design deficiency, identified by the vendor, could result in intercooler tube failure and jacket water leakage. The finding was entered into the licensee's corrective action program as Condition Report CR-GGN-2013-02631.

The failure to correct a nonconforming condition in the division 1 and 2 standby diesel generators' inlet plenums is a performance deficiency. The performance deficiency is more than minor and therefore a finding because it adversely affected the Mitigating Systems Cornerstone attribute of equipment performance and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage), and if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Specifically, the licensee's failure to implement corrective actions to resolve a known design deficiency of the intercooler inlet plenums could have resulted in either the division 1 or 2 standby diesel generator failing to perform its safety function. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the finding was determined to be of very low safety significance (Green), because the finding was a design deficiency affecting a mitigating systems structure, system, or component that did not lose operability or functionality. The finding did not have a cross-cutting aspect because the most significant contributor to the performance deficiency did not reflect current licensee performance (Section 1R17.1.b.2).

Inspection Report# : [2013003](#) (*pdf*)

**Significance:** G Jun 28, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Correct a Nonconforming Condition in the Train B Starting Circuit**

Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," which states, in part, that "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances, are promptly identified and corrected." Specifically, from November 20, 1998, until November 7, 2012, actions to correct a known nonconforming condition involving the low pressure interlock of the train B starting circuit on both the division 1 and 2 standby diesel generators had not been implemented. If the train A starting circuit were to fail and starting air pressure were to fall below 120 psig, the diesel generator would have all automatic shutdown permissives active, which are supposed to be bypassed during a loss-of-coolant-accident signal. This was considered a single point vulnerability for the train B starting circuit. The finding was entered into the licensee's corrective action program as Condition Report CR-GGN-2013-02524.

The failure to correct a nonconforming condition in the division 1 and 2 standby diesel generator's train B starting circuits is a performance deficiency. The performance deficiency is more than minor and therefore a finding because it affected the Mitigating Systems Cornerstone attribute of equipment performance and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage), and if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Specifically, the licensee's failure to implement corrective actions to resolve a known nonconforming condition of the low pressure interlock of the train B starting circuit could have resulted in either the division 1 or 2 standby diesel generator failing to perform its safety function. Using Inspection Manual

Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” the finding was determined to be of very low safety significance (Green), because the finding was a design deficiency affecting a mitigating systems structure, system, or component that did not lose operability or functionality. The finding did not have a cross-cutting aspect because the most significant contributor to the performance deficiency did not reflect current licensee performance (Section 1R17.1.b.3).

Inspection Report# : [2013003](#) (*pdf*)

**Significance:**  Jun 28, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Verify the Residual Heat Removal B System was Full of Water Within its Specified Frequency**

Green. The inspectors identified a non-cited violation of Technical Specification Surveillance Requirement SR 3.5.1.1 for the failure to verify the residual heat removal B system was full of water within its specified frequency. The inspectors reviewed a low pressure core injection subsystem B monthly functional test that was performed on April 10, 2013, per Procedure 06-OP-1E12-M-0002, “LPCI/RHR Subsystem B Monthly Functional Test,” Revision 113. The inspectors identified that the licensee failed to perform ultra sonic testing on the pipe prior to and after venting of the pipe directly upstream of the residual heat removal heat exchanger B outboard vent valve (1E12F074B). By not performing the ultra sonic testing, the licensee did not verify the residual heat removal system was full of water as required by Surveillance Requirement 3.5.1.1. Immediate corrective actions included performing the ultra sonic tests, which verified the system was full of water and satisfied the surveillance requirement. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2013-02847.

The failure to verify the residual heat removal B system was full of water as required by Technical Specification Surveillance Requirement SR 3.5.1.1 is a performance deficiency. The performance deficiency is more than minor and therefore a finding because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone’s objective of ensuring the availability, reliability and capability of systems that respond to prevent undesirable consequences. Specifically, the failure to perform the required ultra sonic testing resulted in Technical Specification Surveillance Requirement SR 3.5.1.1 not being met. Therefore, the licensee could not ensure the system would perform properly by injecting its full capacity into the reactor coolant system upon demand. Using NRC Inspection Manual Chapter 0609, Attachment 4, “Initial Characterization of Findings,” the inspectors determined that the issue affected the Mitigating Systems Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings at Power,” the inspectors determined that the issue had a very low safety significance (Green) because it was not a deficiency affecting the design or qualification of a mitigating system, structure, or component, does not represent a loss of system or function, does not represent a loss of function for greater than its technical specification allowed outage time, and does not represent a loss of function as defined by the licensee’s Maintenance Rule program for greater than

24 hours. Through interviews with operations personnel, the inspectors determined the apparent cause of the finding was that management failed to ensure the ultra sonic test was performed. Therefore, the finding had a cross-cutting aspect in the human performance area associated with the work practices component because the licensee failed to ensure supervisory and management oversight of work activities [H.4(c)] (Section 1R22.b).

Inspection Report# : [2013003](#) (*pdf*)

**Significance:**  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Properly Seal Safety-related Manholes**

Green. The inspectors identified a non-cited violation of License Condition 2.C(41), “Fire Protection Program,” involving the failure to ensure that manhole MH01 was properly sealed to prevent entry of flammable liquid. Specifically, on February 20, 2013, four manhole covers had between one to three loose bolts and evidence of water

seepage. These vaults contain safety related cables for standby service water trains A and B. Immediate corrective actions included cleaning and tapping the bolt holes to ensure proper thread engagement, adding work instructions to the preventative maintenance procedure to clean the manhole bolt holes, and verifying that the other manholes containing safety-related cables did not have similar issues with loose bolts on the manhole covers. The licensee entered this issue in their corrective action program as Condition Report CR GGN-2013-01348.

This finding is more than minor because it is associated with the Mitigating Systems Cornerstone attribute of protection against external factors and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Mitigating Systems Cornerstone and required the use of Inspection Manual Chapter 0609, Attachment 4, Appendix F, "Fire Protection Significance Determination Process." However, an NRC senior reactor analyst determined that the unique nature of this performance deficiency did not lend itself to analysis by the methods provided in Appendix F. Therefore, a Phase 3 analysis was performed. Based on a bounding analysis, the analyst determined that the change in core damage frequency was approximately  $1.5E-7$ /yr. The result was low because of the relatively short periods of time that fuel was actually being transferred, the low probability of transfer system failures, and the low likelihood that a loss of normal service water initiator would occur following a fire in the subject manholes. The finding has a cross-cutting aspect in the human performance area associated with the resources component because the licensee did not provide adequate work packages [H.2(c)] (Section 1R06).

Inspection Report# : [2013002](#) (pdf)

**Significance:** G Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Monitor for Ice on Standby Service Water Towers**

Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion V, for the licensee's failure to monitor for ice accumulation on the standby service water cooling towers in accordance with station procedures. On January 17, 2013, the plant experienced a winter storm but operators did not implement Standby Service Water System Operating Instruction, 04-1-01-P41-1, Revision 137, Section 6.2, "Cold Weather Operation," which directed the licensee to monitor the standby service water cooling tower for ice accumulation when weather conditions existed that could have resulted in icing of the cooling tower fill material and missile grating. The licensee entered this issue into their corrective action program as Condition Report CR-GGNS-2013-00426.

The failure to monitor for ice accumulation in accordance with station procedures is a performance deficiency. The finding is more than minor because if left uncorrected, it could lead to a more significant safety concern. Specifically, the occurrence of ice accumulation on the standby service water cooling towers, if unmonitored, could cause damage to the fill material and/or the tower missile gratings, which would render the standby service water system inoperable. Using NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Mitigating Systems Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that the issue had a very low safety significance (Green) because it was not a deficiency affecting the design or qualification of a mitigating system, structure or component, does not represent a loss of system or function, does not represent a loss of function for greater than its technical specification allow outage time, and does not represent a loss of function as defined by the licensee's Maintenance Rule program for greater than 24 hours. The finding has a cross-cutting aspect in the human performance area associated with the work control component because the licensee failed to appropriately plan work activities based on environmental conditions that may impact plant structures, systems and components [H.3(a)] (Section 1R13).

Inspection Report# : [2013002](#) (pdf)

**Significance:**  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Maintain Design Control for Setpoint Calculations**

Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the failure of the licensee to maintain design control, incorporate, verify, and check new instrument drift values, and translate the design basis requirements for multiple allowable values and trip setpoints described in the technical specifications into setpoint calculations. During the review of condition reports associated with an operability review of the licensee's transition from an 18- to 24-month operating cycle in August 2012, inspectors identified that the licensee failed to maintain design control of multiple setpoint calculations. In response to NRC inspector questioning, a licensee review of the calculations identified that three of the 14 calculations reviewed contained calculated allowable values that differed from the values contained in the Technical Specifications associated with Level 8 Narrow Range, Reactor Scram on High SDVP Water Level, and HPCS & RCIC Pump Suction Transfer on High Suppression Pool Level. An assessment of the calculations also determined that one other calculation contained an error that was introduced during the replacement of the high-pressure turbine rotor in a recent refueling outage, which would require a license amendment request. The licensee entered this condition in their corrective action program as CR-GGN-2013-00371.

The failure to maintain design control, incorporate, verify, and check new instrument drift values, and translate the design basis requirements into multiple allowable values and trip setpoints described in the technical specifications into facility setpoint calculations is a performance deficiency. This finding is more than minor because it is associated with the Mitigating Systems Cornerstone attribute of design control and affected the cornerstone objective of ensuring the capability of the safety-related system to respond to initiating events to prevent undesirable consequences. In accordance with NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the issue was determined to affect the Mitigating Systems Cornerstone. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined the finding was of very low safety significance (Green) because it was a design deficiency confirmed not to result in a loss of the offsite power supply operability or functionality. This finding has a cross-cutting aspect in the area of human performance decision-making because the licensee did not use a systematic decision making process and did not obtain interdisciplinary input on a risk significant decision [H.1(a)] (Section 1R15).

Inspection Report# : [2013002](#) (*pdf*)

**Significance:**  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Correct a Scaffold Affecting Fire Brigade Access**

Green. The inspectors identified a non-cited violation of License Condition 2.C(41), "Fire Protection Program," for the failure to identify and correct a condition adverse to fire protection. Specifically, the licensee failed to ensure that fire brigade members had sufficient access through a scaffold built in the diesel generator building hallway into the division-1 diesel generator room. The immediate corrective actions included removing the scaffold in the diesel generator building hallway. The licensee documented this issue in their corrective action program as Condition Report CR-GGN-2013-01679.

The failure to take prompt corrective action to ensure adequate access for fire brigade members through installed scaffolding in the diesel generator building hallway to the division-1 diesel generator room is a performance deficiency. The finding is more than because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the inability for fire brigade members to gain access to safety related equipment in timely manner could result in preventing prompt extinguishing of fires. Using NRC Inspection Manual

Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Mitigating Systems Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that the issue has very low safety significance (Green) because the finding involved a risk-significant fire area that had an automatic fire suppression system. The inspectors determined the apparent cause of this finding was that the licensee did not implement the corrective action program with a low threshold for identifying scaffolding that could impede fire brigade member response during a fire. Therefore the finding had a cross-cutting aspect in the problem identification and resolution area associated with the corrective action program component because the licensee failed to identify conditions adverse to fire protection [P.1(a)] (Section 1R22).

Inspection Report# : [2013002](#) (*pdf*)

**Significance:** G Feb 27, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Procedure for Aligning Nitrogen Backup to Automatic Deressurization System**

- Green. The team identified a Green non-cited violation (NCV) of Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Specifically, the licensee's procedures for aligning portable nitrogen bottles to the Instrument Air system for backup operation of Automatic Depressurization System (ADS) valves do not include a step to direct the pressure regulator outlet isolation valves to be opened. If these valves are left closed, the nitrogen bottles will remain isolated from the Instrument Air system.

The failure to include a procedural step to open the nitrogen regulator outlet isolation valves when aligning nitrogen to the ADS valve instrument air lines is a performance deficiency. The performance deficiency is more than minor and is therefore a finding because it is associated with the procedure quality attribute of the mitigating systems cornerstone and affects the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This deficiency could have significantly affected the operator's ability to perform the activity affecting quality, in this case, aligning nitrogen as a backup to ADS valve instrument air. Using Inspection Manual Chapter 0609, Attachment 4, "Initial Screening and Characterization of Findings," and Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," a Phase 1 screening was performed and determined that the finding required a detailed risk evaluation because the finding would have resulted in a loss of system safety function had the procedure been called upon.

The senior reactor analyst performed a detailed risk evaluation using the Grand Gulf Standardized Plant Analysis Risk model Version 8.22, and the SPAR-H human reliability analysis method. This method resulted in an incremental conditional core damage probability of  $7.0 \times 10^{-6}$ . However, the analyst noted that, given the specific performance deficiency, this method provided a bounding analysis. Therefore, the finding was assessed using Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process using Qualitative Criteria." The analyst noted that licensee calculations and surveillance of the accumulators and associated check valves indicated that accumulator pressure would remain available for much longer than the 6 hours suggested in the model. Additionally, the failure of the 21 safety-relief valves under this condition would not occur simultaneously, but would be staggered as a result of the depressurization of individual accumulators. This would provide additional indication, cues, and time for operators to identify and correct the valve alignment error. Finally, the SPAR model does not consider the potential for recovery of the instrument air system. Based on this additional qualitative information, the analyst determined that the additional cues and time provided to the operators combined with the straight-forward diagnosis for this specific finding would reduce the overall risk of this performance deficiency by more than an order of magnitude. Therefore, using a bounding quantitative evaluation combined with qualitative factors, this finding was determined to be of very low safety significance (Green).

The finding has a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee did not implement a corrective action program with a low threshold for identifying issues by missing multiple opportunities to identify the procedural discrepancy when it was developing and validating the exam material for submission to the NRC [P.1(a)].

Inspection Report# : [2012301](#) (pdf)

**Significance:**  Dec 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Implement Adequate Procedure Instructions to Perform Preventive Maintenance Requiring The Periodic Replacement of the Control Relays in the GE Magne Blast Circuit Breakers**

Green. The inspectors reviewed a self-revealing non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to complete preventive maintenance tasks on the high pressure core spray division III diesel generator output breaker in accordance with the corresponding preventive maintenance task template. The licensee entered this issue in their corrective action program as Condition Report CR-GGN-2012-07992. The immediate corrective actions included replacing the failed control relay and restoring operability to the division III diesel generator. The long term corrective actions included revising breaker refurbishment/replacement procedure with directions to replace the control relay and change the procedure frequency to every 10 years versus every 12 years.

The inspectors determined that this performance deficiency was more than minor and is therefore a finding because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, this failed control relay caused the subject breaker to fail to close during the division III diesel generator monthly surveillance on June 5, 2012. The inspectors used NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," to determine that the issue affected the Mitigating System Cornerstone. Because the finding pertained only to a degraded condition while the plant was shutdown, the inspectors used Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," Checklist 8, "Cold Shutdown or Refueling Operation – Time to Boil > 2 Hours: RCS Level < 23' Above Top of Flange," to determine that the finding was of very low safety significance because it did not increase the likelihood of a loss of reactor coolant system inventory; did not degrade the licensee's ability to terminate a leak path or add RCS inventory when needed; did not significantly degrade the licensee's ability to recover decay heat removal if lost; and did not affect the safety/relief valves (Green). The inspectors determined that the cause of this finding was a latent issue that is not reflective of current performance, therefore no cross-cutting aspect was identified. (Section 1R20.b).

Inspection Report# : [2012005](#) (pdf)

**Significance:**  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Establish Gain Settings on APRM and LPRM Instruments in Accordance with Design Requirements**

Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to establish the gain settings used on the power range neutron monitoring system in accordance with design requirements. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2013-00177. The immediate corrective actions included adjusting gain settings for their average power range monitor (APRM) instruments to indicate actual core thermal power as determined by the heat balance. In addition, the licensee revised their neutron monitoring procedure to set the initial gains for the average power range monitor to the maximum value to maintain conservative power indication during future startups. They also changed their local power range monitor replacement procedure to use the vendor specified initial gain setting of 3.692 prior to startup.

The finding was more than minor because it affected the design control attribute of the Mitigating Systems Cornerstone and impacted the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the incorrect gain settings caused a violation of technical specification 3.0.4 by rendering the APRM Neutron Flux High – Setdown scram function and the Neutron Flux – Upscale, Startup control rod block function inoperable prior to entry into Mode 2. In accordance with NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the issue affected the Mitigating Systems Cornerstone. In accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power", the inspectors determined that the issue had very low safety significance (Green) because although the finding affected a single reactor protection system trip signal to initiate a reactor scram, it did not affect the function of other redundant trips or diverse methods of reactor shutdown, did not involve control manipulations that unintentionally added positive reactivity, and did not result in a mismanagement of reactivity by operators. Because the performance deficiency occurred in the past and is not reflective of current licensee performance, this finding was not assigned a cross-cutting aspect. (Section 40A3).

Inspection Report# : [2012005](#) (pdf)

**Significance:**  Oct 21, 2011

Identified By: NRC

Item Type: VIO Violation

**Inadequate Corrective Action for a Leak on the Division II Emergency Diesel Generator Lube Oil Sump**

Green. The team identified a Green cited violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Actions," for the failure to promptly identify and correct a leak on the Division II emergency diesel generator lube oil sump. Despite identification of the leak in 2004, ineffective attempts to repair the leak and previous identification by the NRC in 2009, the licensee dispositioned the leak as "accept as-is" without a full understanding of the lube oil sump leak and potential consequences. The licensee entered this condition into their corrective action program as condition report CR-GGN-2011-8880.

The condition was discovered and documented by the licensee in 2004. This finding was initially determined by the NRC to be a minor violation in 2009. Paragraph F of Section 2.10 of the NRC Enforcement Manual states in part that where a licensee does not take corrective action for a minor violation, the matter should be considered more than minor and associated with a green inspection finding and dispositioned in a cited or noncited violation, as appropriate. This finding is now determined to be more than minor because if left uncorrected the failure to restore the lube oil sump for the Division II emergency diesel generator to design conditions would have the potential to lead to a more significant safety concern, specifically, the leak could worsen and potentially affect operability of the emergency diesel generator. Due to the licensee's failure to restore compliance within a reasonable time after the violation was identified, this violation is being cited as a Notice of Violation consistent with Section 2.3.2 of the Enforcement Policy. This finding affects the mitigating systems cornerstone. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," this finding was of very low safety significance because it did not create a loss of system safety function of a single train for greater than the technical specification allowed outage times, and did not affect seismic, flooding, or severe weather initiating events. This finding has a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program component because the licensee failed to thoroughly evaluate this problem such that the resolutions addressed the causes [P.1(c)]. (Section 40A2.5d)

Inspection Report# : [2011006](#) (pdf)

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## Barrier Integrity

**Significance:**  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Make Timely Corrective Actions to Repair the Degraded Auxiliary Building Water Intrusion Barrier**

Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," involving the failure to correct a condition adverse to quality in a timely manner. Specifically, the licensee failed to correct multiple degraded conditions associated with the auxiliary building water intrusion barrier. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2012-10314. Corrective actions included generating Work Order 318398 and delegating funds to repair the water intrusion barrier at the next available opportunity.

The finding is more than minor because if left uncorrected, the condition of a degraded auxiliary building water intrusion barrier could lead to a more significant safety concern. Specifically, continued degradation of the water intrusion barrier could lead to the auxiliary building (secondary containment) being degraded such that the standby gas treatment system would not be able to achieve and maintain the design negative pressure of ¼ inch water column within 120 seconds. Using Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the finding affected the Barrier Integrity Cornerstone. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that the finding had very low safety significance (Green) because the finding only represents a degradation of the radiological barrier function provided for the auxiliary building and standby gas treatment system. The inspectors determined that the apparent cause of this finding was that the licensee had failed to classify the degraded water intrusion barrier as a condition adverse to quality that warranted correction in a timely manner. Therefore, the finding has a cross-cutting aspect in the problem identification and resolution area, corrective action program component because the licensee failed to properly classify conditions adverse to quality [P.1(c)](Section 1R12).

Inspection Report# : [2012005](#) (*pdf*)

**Significance:**  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Adequately Monitor the Condition of the Auxiliary Building Water Intrusion Barrier**

Green. The inspectors identified a non-cited violation of 10 CFR 50.65(a)(2), for the failure to evaluate the condition of the auxiliary building water intrusion barrier. The licensee entered this issue into their corrective action program as Condition Report CR-GGN-2012-11740. Corrective actions included initiating Condition Report CR-GGN-2012-12286, in which the licensee concluded the degraded water intrusion barrier had experienced a Maintenance Rule Functional Failure and required further evaluation to determine if the barrier should be classified in 10 CFR 50.65 (a) (1).

The finding is more than minor because if left uncorrected, the failure to adequately evaluate the condition of the auxiliary building water intrusion barrier in accordance with the maintenance rule program could lead to a more significant safety concern. Specifically, continued inadequate evaluation of the water intrusion barrier could compromise the integrity of the secondary containment function of the auxiliary building. Using Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the inspectors determined that the finding affected the Barrier Integrity Cornerstone. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at Power," the inspectors determined that the finding was of very low safety significance (Green) because the finding only represents a degradation of the radiological barrier function provided for the auxiliary building and standby gas treatment system. The inspectors determined that this finding is a latent issue; therefore no cross cutting aspect was assigned (Section 1R12).

Inspection Report# : [2012005](#) (*pdf*)

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## Emergency Preparedness

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## Occupational Radiation Safety

**Significance:**  Dec 31, 2012

Identified By: Self-Revealing

Item Type: FIN Finding

### **Failure to Adequately Plan and Control Work Activities to Maintain ALARA**

Green. The inspector reviewed a self-revealing finding of very low safety significance because during the refueling outage 18 extended power upgrade, the licensee did not adequately plan and control work activities for the design and replacement of the new fuel pool cooling heat exchangers. Specifically, outage personnel did not perform adequate pre-outage walkdowns, which resulted in significant unplanned collective exposure. Actual collective dose and hours for Radiation Work Permit 2012-1086, "Fuel Pool Cooling & Cleanup Heat Exchanger Replacement," was 23.9 person-rem and 12,237 RWP-hours, respectively. This is compared to the initial planned estimate of 3.74 person-rem and 1,905 RWP-hours. This finding and procedural concern was entered into the corrective action program as Condition Reports CR-GGNS-2012-09011 and CR-GGNS-2012-12398.

The failure to appropriately use ALARA planning and controls procedures to prevent unplanned and unintended collective doses was a performance deficiency. This performance deficiency was more than minor because it affected the Occupational Radiation Safety Cornerstone attribute of Program and Process in that the failure to adequately implement ALARA procedures caused the collective radiation dose for the job activity to exceed the planned dose by more than 50 percent. In addition, this type of issue is addressed in Example 6.j of IMC 0612, Appendix E, "Examples of Minor Issues." Using the Occupational Radiation Safety Significance Determination Process, the inspector determined this performance deficiency to be a finding of very low safety significance because although it involved ALARA planning and controls, the licensee's latest rolling three-year average does not exceed 240 person-rem. This finding has a cross-cutting aspect in the human performance area, work control component, because the licensee failed to evaluate the impact of work scope change on human performance and interdepartmental communication and coordination prior to commencing work activities. Specifically, there was inappropriate coordination and communication of work activities between work groups [H.3(b)](Section 2RS02).

Inspection Report# : [2012005](#) (*pdf*)

**Significance:**  Dec 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Failure To Follow the Radiation Work Permit Requirements During Reactor Cavity High Water Operations**

Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1 for failure to comply with radiological exposure controls specified in Radiation Work Permit 2012-1402, "Refuel Floor High Water Activities." Specifically, radiation exposure controls in the RWP required the licensee to verify that fuel pool cleanup (demineralizers) was in-service, and if dose rates increased by more than 0.2 millirem/hour, change the resins. During reactor cavity operations, both fuel pool demineralizer trains were inoperable at least 25 days. In addition, the dryer separator pool and reactor cavity were isolated from the fuel pool clean up system. Consequently, general area radiation levels on the reactor cavity floor increased from 0.4 millirem/hour to 6.0 millirem/hour. The actual collective dose and hours for the work activity was 8.24 person-rem and 9,000 RWP-hours, respectively. This is compared to the planned initial estimate of 4.60 person-rem and 6,987 RWP-hours. This Radiation Work Permit and procedure violation was documented in the licensee's corrective action program as Condition Reports CR-GGNS-2012-04288

and CR-GGNS-2012-12401.

The licensee's failure to comply with the RWP to prevent unplanned and unintended collective doses was a performance deficiency. This performance deficiency was more than minor because it affected the Occupational Radiation Safety Cornerstone attribute of Program and Process in that the failure to adequately implement ALARA procedures caused the collective radiation dose for the job activity to exceed the planned dose by more than 50 percent. In addition, this type of issue is addressed in Example 6.i of IMC 0612, Appendix E, "Examples of Minor Issues." Using the Occupational Radiation Safety Significance Determination Process, the inspector determined this performance deficiency to be a non-cited violation of very low safety significance because although it involved ALARA planning and controls, the licensee's latest rolling three-year average does not exceed 240 person-rem. The violation involved a cross-cutting aspect in the human performance area, work control component, because the licensee did not appropriately coordinate work activities by incorporating actions to address the need for work groups to communicate and coordinate with each other during activities in which interdepartmental coordination was necessary to assure human performance [H.3(b)](Section 2RS02)

Inspection Report# : [2012005](#) (*pdf*)

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## Public Radiation Safety

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### Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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### Miscellaneous

Last modified : December 03, 2013